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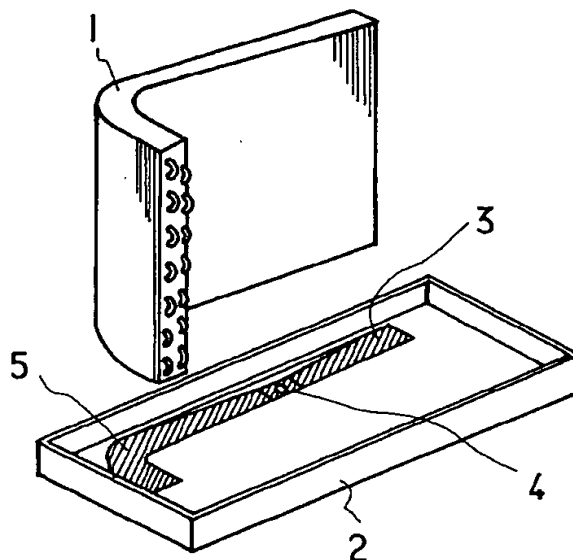
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(54)【考案の名称】 空気調和機の室外機

(57)【要約】

【目的】 ドレン水を流れやすくすることで、外気温が零下のときでも、ドレン水の凍結を防止する。

【構成】 室外機は、熱交換器1と、熱交換器1で除霜したドレン水を回収するドレンパン2と、熱交換器1に外気を送風する送風機とから構成している。暖房運転後の除霜時に発生するドレン水を機外へ排出する排水孔4と、ドレンパン2の排水孔4へ流す溝3とを設け、溝3にテフロンテープ5を貼り付け、溝3の上方に熱交換器1を設置する。熱交換器1から除霜したドレン水がドレンパン2に流れ落ち、ドレンパン2の溝3に流れるドレン水を流れやすくすることで、外気温が零下のときでも、ドレン水の凍結を防止する。



1

2

【実用新案登録請求の範囲】

【請求項1】 熱交換器と、該熱交換器で除霜したドレン水を回収するドレンパンと、上記熱交換器に外気を送風する送風機とを設けた空気調和機の室外機において、暖房運転後の除霜時に発生するドレン水を機外へ排出する排水孔と、上記ドレンパンの排水孔へ流す溝とを設け、上記ドレンパンの溝にドレン水が残らないように撥水加工を施したことを特徴とする空気調和機の室外機。

【図面の簡単な説明】

【図1】 本考案の空気調和機の室外機に係る室外機を示す概略斜視図である。

【図2】 本考案の空気調和機の室外機の第1実施例に係るドレンパンを示す斜視図である。

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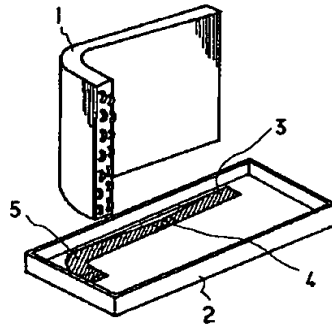
*【図3】 本考案の空気調和機の室外機の第2実施例に係るドレンパンを示す斜視図である。

【図4】 従来の空気調和機の室外機を示す概略側断面図である。

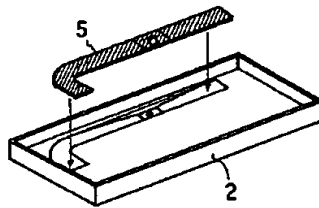
【符号の説明】

- 1 熱交換器
- 2 ドレンパン
- 3 溝
- 4 排水孔
- 5 テフロンテープ
- 6 テフロンコーティング
- 7 送風機

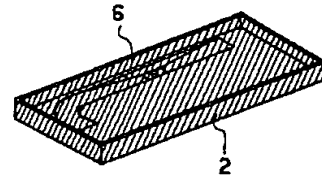
【図1】



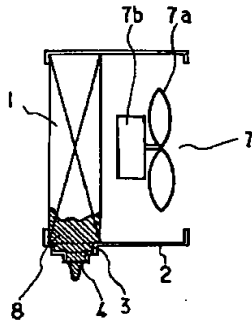
【図2】



【図3】



【図4】



【考案の詳細な説明】

【0001】

【産業上の利用分野】

本考案は、空気調和機等の室外機のドレン水処理構造に関するものである。

【0002】

【従来の技術】

図4は従来の空気調和機の室外機を示す概略側断面図である。

図4に示すように、室外機は、熱交換器1と、該熱交換器1で除霜したドレン水を回収するドレンパン2と、上記熱交換器1に外気を送風する送風機7とから構成されている。

【0003】

上記ドレンパン2は、上記熱交換器1で除霜したドレン水を流れやすくする溝3と、ドレン水を排出する排水孔4とが設けられている。上記溝3の上方に上記熱交換器1を設置し、上記熱交換器1で除霜したドレン水は、上記ドレンパン2の溝3に残るので、外気温が零下のときには、該溝3に残ったドレン水が凍結し、この凍結状態のドレン水8がドレンパン2に付着する。上記送風機7は、外気を上記熱交換器1に送風するプロペラファン7aと、該プロペラファン7aを回転させるファンモータ7bとから構成され、モータアングル（図示せず）で上記ドレンパン2に取り付けられている。

【0004】

上記のように構成した空気調和機の室外機において、上記送風機7で上記熱交換器1に外気を送風し、上記熱交換器1で熱交換させ、一定時間暖房運転すると、上記熱交換器1に霜が付着し、熱交換の能力が低下するため、暖房運転を停止させ除霜運転を行い、上記熱交換器1にホットガスを逆流させ霜を解凍させる。そして、解凍した霜はドレン水になり下部の上記ドレンパン2に流れ落ち、上記ドレンパン2の排水孔4から機外に流れ落ちる。

【0005】

このとき、外気温が零下であると、上記熱交換器1で除霜したドレン水がドレンパン2の表面に残り、凍結状態のドレン水8となり、除霜を繰り返して行くと

、上記ドレンパン2の溝3と上記熱交換器1との部分とで凍結が起こり、この凍結を防止するために、除霜時間を長くして完全に除霜させるか、ヒータを配設して強制的に除霜させるかのどちらかの手段で行っていた。

【0006】

【考案が解決しようとする課題】

しかし、除霜時間を長くして除霜させても、上記ドレンパン2の板厚が1～1.2mm程度の板金プレスが必要であり、上記溝3の傾斜を付ける絞り加工にも限度があるため、完全に流す構造は難しく、また、ヒータを配設して強制的に除霜させることはできるが、別の取り付け部品が必要なため、部品点数が増えてしまうという問題点があった。

【0007】

本考案はこのような問題点を解決するためになされたものであって、上記ドレンパン2の溝3を撥水加工することにより、ドレン水を流れやすくし、且つ部品点数を増やさなくて済む空気調和機の室外機を提供することを目的とする。

【0008】

【課題を解決するための手段】

上記目的を達成するためにかかる空気調和機の室外機は、熱交換器と、該熱交換器で除霜したドレン水を回収するドレンパンと、上記熱交換器に外気を送風する送風機とを設けた空気調和機の室外機において、暖房運転後の除霜時に発生するドレン水を機外へ排出する排水孔と、上記ドレンパンの排水孔へ流す溝とを設け、上記ドレンパンの溝にドレン水が残らないように撥水加工を施している。

【0009】

【作用】

上記構成において、上記ドレンパンの溝を撥水加工することにより、ドレン水が流れやすくなることで、上記ドレンパンの溝にドレン水が残らないので、外気温が零下のときでも、ドレン水の凍結を防止することができる。

【0010】

【実施例】

以下、本考案の実施例を図面に基づいて詳述する。

尚、本考案の従来例と同一のものは同一符号で示す。

図1は本考案の空気調和機の室外機に係る室外機を示す概略斜視図、図2は本考案の空気調和機の室外機の第1実施例に係るドレンパンを示す斜視図である。

図1に示すように、室外機は、熱交換器1と、該熱交換器1で除霜したドレン水を回収するドレンパン2と、上記熱交換器1に外気を送風する送風機（図示せず）とから構成されている。

【0011】

上記ドレンパン2は、上記熱交換器1で除霜したドレン水を流れやすくする溝3と、該溝3に流れるドレン水をさらに流れやすくするテフロンテープ5と、ドレン水を排出する排水孔4とを設け、上記溝3の上方に上記熱交換器1が取り付けられている。

【0012】

上記送風機は、外気を上記熱交換器1に送風するプロペラファンと、該プロペラファンを回転させるファンモータとから構成され、モータアングル（図示せず）で上記ドレンパン2に取り付けられている。

【0013】

図2に示すように、上記ドレンパン2の溝3にテフロンテープ5が貼り付けられる。

【0014】

上記の第1実施例において、上記ドレンパン2の溝3にテフロンテープ5を貼り付けることにより、テフロンテープの撥水性によってドレン水が流れやすくなることで、上記ドレンパン2の溝3にドレン水が残らないので、外気温が零下のときでも、ドレン水の凍結を防止することができる。

【0015】

図3は本考案の空気調和機の室外機の第2実施例に係るドレンパンを示す斜視図である。

図3は図1に示す構成において、上記ドレンパン2の表面全体にテフロンコーティング6を施している。

【0016】

上記の第2実施例において、上記ドレンパン2の溝3にテフロンコーティング6を施すことにより、テフロンテープ同様、その撥水性によってドレン水が流れやすくなることで、上記ドレンパン2の溝3にドレン水が残らないので、外気温が零下のときでも、ドレン水の凍結を防止することができる。また、上記ドレンパン2の表面全体にテフロンコーティング6を施すことにより、海岸地域によく発生する錆も防止することができる。

【0017】

【考案の効果】

本考案の空気調和機の室外機は以上のように構成されたものであつて、上記ドレンパン2は、上記熱交換器1から流れ落ちたドレン水を完全に流すことができるので、ドレン水の凍結を防止することができる。

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DOCUMENT 1/1
DOCUMENT NUMBER
unevaluable

1. JP.06-018823,UK(994)

JAPANESE [JP.06-018823,U]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT
OF THE INVENTION TECHNICAL PROBLEM MEANS OPERATION EXAMPLE
DESCRIPTION OF DRAWINGS DRAWINGS

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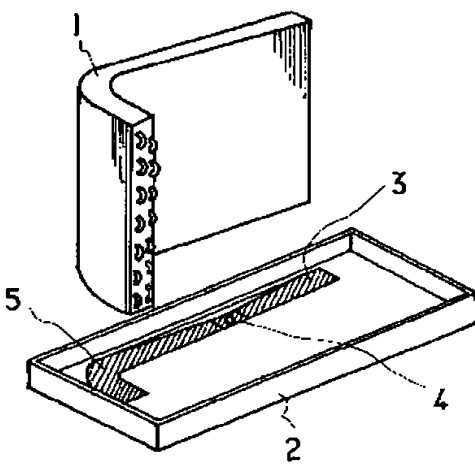
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CLAIMS

[Utility model registration claim]
[Claim 1] The exterior unit of the air conditioner characterized by to perform
water repellent finishing so that the drain hole which discharges the drain water
generated in the exterior unit of the air conditioner which formed the drain pan
which collects the drain water which carried out defrosting, and the blower which
ventilates the above-mentioned heat exchanger in the open air at the time of
defrosting after heating operation with a heat exchanger and this heat exchanger
to outside the plane, and the slot passed to the drain hole of the
above-mentioned drain pan prepare and drain water may not remain in the slot
of the above-mentioned drain pan

[Translation done.]

Drawing selection [Representative drawings]



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CLAIMS

[Utility model registration claim]

[Claim 1] The exterior unit of the air conditioner characterized by to perform water repellent finishing so that the drain hole which discharges the drain water generated in the exterior unit of the air conditioner which formed the drain pan which collects the drain water which carried out defrosting, and the blower which ventilates the above-mentioned heat exchanger in the open air at the time of defrosting after heating operation with a heat exchanger and this heat exchanger to outside the plane, and the slot passed to the drain hole of the above-mentioned drain pan prepare and drain water may not remain in the slot of the above-mentioned drain pan.

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DETAILED DESCRIPTION

[Detailed explanation of a design]

[0001]

[Industrial Application]

This design is related with the drain water treatment structure of exterior units, such as an air conditioner.

[0002]

[Description of the Prior Art]

Drawing 4 is the outline sectional side elevation showing the exterior unit of the conventional air conditioner.

As shown in drawing 4, the exterior unit consists of a heat exchanger 1, a drain pan 2 which collects the drain water which carried out defrosting with this heat exchanger 1, and a blower 7 which ventilates the above-mentioned heat exchanger 1 in the open air.

[0003]

The slot 3 which the above-mentioned drain pan 2 makes it easy to flow the drain water which carried out defrosting with the above-mentioned heat exchanger 1, and the drain hole 4 which discharges drain water are formed. Since the drain water which installed the above-mentioned heat exchanger 1 above the above-mentioned slot 3, and carried out defrosting with the above-mentioned heat exchanger 1 remains in the slot 3 of the above-mentioned drain pan 2, when outside air temperature is the freezing point, the drain water which remained in this slot 3 is frozen, and the drain water 8 of this freeze state adheres to the drain pan 2. The above-mentioned blower 7 consists of propeller-fan 7a which ventilates the above-mentioned heat exchanger 1 in the open air, and fan motor 7b which rotates this propeller-fan 7a, and is attached in the above-mentioned drain pan 2 by the motor angle (not shown).

[0004]

In the exterior unit of the air conditioner constituted as mentioned above, the above-mentioned heat exchanger 1 is ventilated in the open air with the above-mentioned blower 7, if a heat exchange is carried out and fixed time heating operation is carried out with the above-mentioned heat exchanger 1, in order for frost to adhere to the above-mentioned heat exchanger 1 and for the capacity of a heat exchange to descend, stop heating operation, carry out defrosting operation, hot gas is made to flow backwards to the above-mentioned heat exchanger 1, and frost is made to thaw.

And the thawed frost becomes drain water, flows and falls to the lower above-mentioned drain pan 2, and flows and falls outside the plane from the drain hole 4 of the above-mentioned drain pan 2.

[0005]

If the drain water which carried out defrosting to outside air temperature being the freezing point with the above-mentioned heat exchanger 1 at this time remains in the front face of the drain pan 2, turns into the drain water 8 of a freeze state, repeats defrosting and goes in order for a freeze to take place in the portion of the slot 3 of the above-mentioned drain pan 2, and the above-mentioned heat exchanger 1 and to prevent this freeze, it was carrying out with one of the meanses of whether defrosting time is lengthened and carries out defrosting

completely or for a heater to be arranged and to carry out defrosting compulsorily.

[0006]

[Problem(s) to be Solved by the Device]

However, although the sheet metal press whose board thickness of the above-mentioned drain pan 2 is about 1-1.2mm can be required, and the structure completely passed since there is a limit also in the spinning which attaches the inclination of the above-mentioned slot 3 can be difficult, and a heater can be arranged and defrosting can be compulsorily carried out even if it lengthens defrosting time and it carries out defrosting There was a trouble that another fittings of part mark [eye a required hatchet and] will increase.

[0007]

It aims at offering the exterior unit of the air conditioner which does not need to make it easy to flow drain water, and does not need to increase part mark by being made in order that this design may solve such a trouble, and carrying out water repellent finishing of the slot 3 of the above-mentioned drain pan 2.

[0008]

[Means for Solving the Problem]

The exterior unit of the air conditioner which starts in order to attain the above-mentioned purpose In the exterior unit of the air conditioner which formed the heat exchanger, the drain pan which collects the drain water which carried out defrosting with this heat exchanger, and the blower which ventilates the above-mentioned heat exchanger in the open air The drain hole which discharges the drain water generated at the time of defrosting after heating operation to outside the plane, and the slot passed to the drain hole of the above-mentioned drain pan were prepared, and water repellent finishing has been performed so that drain water may not remain in the slot of the above-mentioned drain pan.

[0009]

[Function]

In the above-mentioned composition, that drain water tends to flow by carrying out water repellent finishing of the slot of the above-mentioned drain pan, by the bird clapper, since drain water does not remain in the slot of the above-mentioned drain pan, even when outside air temperature is the freezing point, the freeze of drain water can be prevented.

[0010]

[Example]

Hereafter, the example of this design is explained in full detail based on a drawing. In addition, the same sign shows the same thing as the conventional example of this design.

The outline perspective diagram showing the exterior unit which drawing 1 requires for the exterior unit of the air conditioner of this design, and drawing 2 are the perspective diagrams showing the drain pan concerning the 1st example of the exterior unit of the air conditioner of this design.

As shown in drawing 1 , the exterior unit consists of a heat exchanger 1, a drain pan 2 which collects the drain water which carried out defrosting with this heat exchanger 1, and a blower (not shown) which ventilates the above-mentioned heat exchanger 1 in the open air.

[0011]

The slot 3 which the above-mentioned drain pan 2 makes it easy to flow the drain water which carried out defrosting with the above-mentioned heat exchanger 1, the Teflon tape 5 which make it further easy to flow the drain water which flows into this slot 3, and the drain hole 4 which discharges drain water are formed, and the above-mentioned heat exchanger 1 is attached above the above-mentioned slot 3.

[0012]

The above-mentioned blower consists of a propeller fan which ventilates the above-mentioned heat exchanger 1 in the open air, and a fan motor which rotates this propeller fan, and is attached in the above-mentioned drain pan 2 by the motor angle (not shown).

[0013]

As shown in drawing 2 , the Teflon tape 5 is stuck on the slot 3 of the above-mentioned drain

pan 2.

[0014]

In the 1st above-mentioned example, that drain water tends to flow by the water repellence of a Teflon tape by sticking the Teflon tape 5 on the slot 3 of the above-mentioned drain pan 2, by the bird clapper, since drain water does not remain in the slot 3 of the above-mentioned drain pan 2, even when outside air temperature is the freezing point, the freeze of drain water can be prevented.

[0015]

Drawing 3 is the perspective diagram showing the drain pan concerning the 2nd example of the exterior unit of the air conditioner of this design.

Drawing 3 has given Teflon coating 6 to the whole front face of the above-mentioned drain pan 2 in the composition shown in drawing 1.

[0016]

In the 2nd above-mentioned example, since drain water does not remain in the slot 3 of the above-mentioned drain pan 2 by the bird clapper that drain water tends to flow by the water repellence like a Teflon tape by giving Teflon coating 6 to the slot 3 of the above-mentioned drain pan 2, even when outside air temperature is the freezing point, the freeze of drain water can be prevented. Moreover, the rust well generated in a seashore area can also be prevented by giving Teflon coating 6 to the whole front face of the above-mentioned drain pan 2.

[0017]

[Effect of the Device]

By having constituted the exterior unit of the air conditioner of this design as mentioned above, since ***** and the above-mentioned drain pan 2 can pour completely the drain water which flowed and fell from the above-mentioned heat exchanger 1, they can prevent the freeze of drain water.

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TECHNICAL FIELD

[Industrial Application]

This design is related with the drain water treatment structure of exterior units, such as an air conditioner.

[0002]

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PRIOR ART

[Description of the Prior Art]

Drawing 4 is the outline sectional side elevation showing the exterior unit of the conventional air conditioner.

As shown in drawing 4, the exterior unit consists of a heat exchanger 1, a drain pan 2 which collects the drain water which carried out defrosting with this heat exchanger 1, and a blower 7 which ventilates the above-mentioned heat exchanger 1 in the open air.

[0003]

The slot 3 which the above-mentioned drain pan 2 makes it easy to flow the drain water which carried out defrosting with the above-mentioned heat exchanger 1, and the drain hole 4 which discharges drain water are formed. Since the drain water which installed the above-mentioned heat exchanger 1 above the above-mentioned slot 3, and carried out defrosting with the above-mentioned heat exchanger 1 remains in the slot 3 of the above-mentioned drain pan 2, when outside air temperature is the freezing point, the drain water which remained in this slot 3 is frozen, and the drain water 8 of this freeze state adheres to the drain pan 2. The above-mentioned blower 7 consists of propeller-fan 7a which ventilates the above-mentioned heat exchanger 1 in the open air, and fan motor 7b which rotates this propeller-fan 7a, and is attached in the above-mentioned drain pan 2 by the motor angle (not shown).

[0004]

In the exterior unit of the air conditioner constituted as mentioned above, the above-mentioned heat exchanger 1 is ventilated in the open air with the above-mentioned blower 7, if a heat exchange is carried out and fixed time heating operation is carried out with the above-mentioned heat exchanger 1, in order for frost to adhere to the above-mentioned heat exchanger 1 and for the capacity of a heat exchange to descend, stop heating operation, carry out defrosting operation, hot gas is made to flow backwards to the above-mentioned heat exchanger 1, and frost is made to thaw.

And the thawed frost becomes drain water, flows and falls to the lower above-mentioned drain pan 2, and flows and falls outside the plane from the drain hole 4 of the above-mentioned drain pan 2.

[0005]

If the drain water which carried out defrosting to outside air temperature being the freezing point with the above-mentioned heat exchanger 1 at this time remains in the front face of the drain pan 2, turns into the drain water 8 of a freeze state, repeats defrosting and goes in order for a freeze to take place in the portion of the slot 3 of the above-mentioned drain pan 2, and the above-mentioned heat exchanger 1 and to prevent this freeze, it was carrying out with one of the meanses of whether defrosting time is lengthened and carries out defrosting completely or for a heater to be arranged and to carry out defrosting compulsorily.

[0006]

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EFFECT OF THE INVENTION

[Effect of the Device]

By having constituted the exterior unit of the air conditioner of this design as mentioned above, since ***** and the above-mentioned drain pan 2 can pour completely the drain water which flowed and fell from the above-mentioned heat exchanger 1, they can prevent the freeze of drain water.

[Translation done.]

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Device]

However, since there is a limit also in the spinning which the sheet metal press whose board thickness of the above-mentioned drain pan 2 is about 1-1.2mm is required, and attaches the inclination of the above-mentioned slot 3 even if it lengthens defrosting time and it carries out defrosting, The structure passed completely was difficult, and although a heater can be arranged and defrosting could be carried out compulsorily, there was a trouble that another fittings of part mark [eye a required hatchet and] will increase.

[0007]

It aims at offering the exterior unit of the air conditioner which does not need to make it easy to flow drain water, and does not need to increase part mark by being made in order that this design may solve such a trouble, and carrying out water repellent finishing of the slot 3 of the above-mentioned drain pan 2.

[0008]

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MEANS

[Means for Solving the Problem]

The exterior unit of the air conditioner which starts in order to attain the above-mentioned purpose In the exterior unit of the air conditioner which formed the heat exchanger, the drain pan which collects the drain water which carried out defrosting with this heat exchanger, and the blower which ventilates the above-mentioned heat exchanger in the open air The drain hole which discharges the drain water generated at the time of defrosting after heating operation to outside the plane, and the slot passed to the drain hole of the above-mentioned drain pan were prepared, and water repellent finishing has been performed so that drain water may not remain in the slot of the above-mentioned drain pan.

[0009]

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OPERATION

[Function]

In the above-mentioned composition, that drain water tends to flow by carrying out water repellent finishing of the slot of the above-mentioned drain pan, by the bird clapper, since drain water does not remain in the slot of the above-mentioned drain pan, even when outside air temperature is the freezing point, the freeze of drain water can be prevented.

[0010]

[Translation done.]

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EXAMPLE

[Example]

Hereafter, the example of this design is explained in full detail based on a drawing. In addition, the same sign shows the same thing as the conventional example of this design.

The outline perspective diagram showing the exterior unit which drawing 1 requires for the exterior unit of the air conditioner of this design, and drawing 2 are the perspective diagrams showing the drain pan concerning the 1st example of the exterior unit of the air conditioner of this design.

As shown in drawing 1, the exterior unit consists of a heat exchanger 1, a drain pan 2 which collects the drain water which carried out defrosting with this heat exchanger 1, and a blower (not shown) which ventilates the above-mentioned heat exchanger 1 in the open air.

[0011]

The slot 3 which the above-mentioned drain pan 2 makes it easy to flow the drain water which carried out defrosting with the above-mentioned heat exchanger 1, the Teflon tape 5 which make it further easy to flow the drain water which flows into this slot 3, and the drain hole 4 which discharges drain water are formed, and the above-mentioned heat exchanger 1 is attached above the above-mentioned slot 3.

[0012]

The above-mentioned blower consists of a propeller fan which ventilates the above-mentioned heat exchanger 1 in the open air, and a fan motor which rotates this propeller fan, and is attached in the above-mentioned drain pan 2 by the motor angle (not shown).

[0013]

As shown in drawing 2, the Teflon tape 5 is stuck on the slot 3 of the above-mentioned drain pan 2.

[0014]

In the 1st above-mentioned example, that drain water tends to flow by the water repellence of a Teflon tape by sticking the Teflon tape 5 on the slot 3 of the above-mentioned drain pan 2, by the bird clapper, since drain water does not remain in the slot 3 of the above-mentioned drain pan 2, even when outside air temperature is the freezing point, the freeze of drain water can be prevented.

[0015]

Drawing 3 is the perspective diagram showing the drain pan concerning the 2nd example of the exterior unit of the air conditioner of this design.

Drawing 3 has given Teflon coating 6 to the whole front face of the above-mentioned drain pan 2 in the composition shown in drawing 1.

[0016]

In the 2nd above-mentioned example, since drain water does not remain in the slot 3 of the above-mentioned drain pan 2 by the bird clapper that drain water tends to flow by the water repellence like a Teflon tape by giving Teflon coating 6 to the slot 3 of the above-mentioned drain pan 2, even when outside air temperature is the freezing point, the freeze of drain water can be prevented. Moreover, the rust well generated in a seashore area can also be

prevented by giving Teflon coating 6 to the whole front face of the above-mentioned drain pan 2.
[0017]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the outline perspective diagram showing the exterior unit concerning the exterior unit of the air conditioner of this design.

[Drawing 2] It is the perspective diagram showing the drain pan concerning the 1st example of the exterior unit of the air conditioner of this design.

[Drawing 3] It is the perspective diagram showing the drain pan concerning the 2nd example of the exterior unit of the air conditioner of this design.

[Drawing 4] It is the outline sectional side elevation showing the exterior unit of the conventional air conditioner.

[Description of Notations]

- 1 Heat Exchanger
- 2 Drain Pan
- 3 Slot
- 4 Drain Hole
- 5 Teflon Tape
- 6 Teflon Coating
- 7 Blower

[Translation done.]

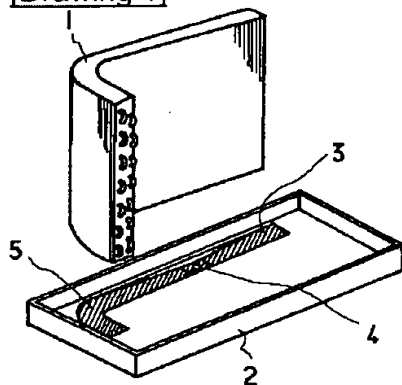
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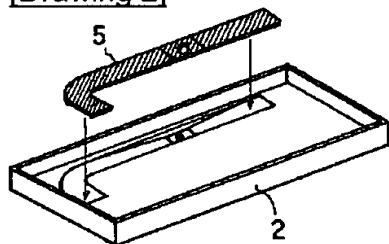
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DRAWINGS

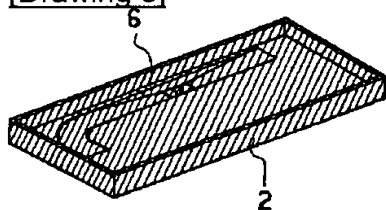
[Drawing 1]



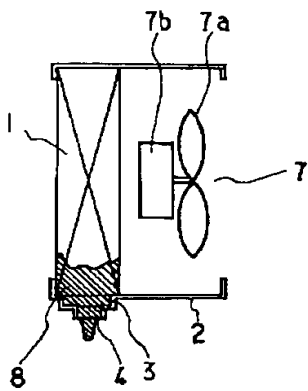
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]